

## **Nomenclature of amphiboles: Report of the Subcommittee on Amphiboles of the International Mineralogical Association, Commission on New Minerals and Mineral Names**

**BERNARD E. LEAKE<sup>1†</sup> (CHAIRMAN), ALAN R. WOOLLEY (SECRETARY),<sup>2</sup>  
CHARLES E.S. ARPS,<sup>\*‡</sup> WILLIAM D. BIRCH,<sup>\*§</sup> M. CHARLES GILBERT,<sup>||</sup>  
JOEL D. GRICE,<sup>3#</sup> FRANK C. HAWTHORNE,<sup>4</sup> AKIRA KATO,<sup>5</sup> HANAN J. KISCH,<sup>6</sup>  
VLADIMIR G. KRIVOVICHEV,<sup>7</sup> KEES LINTHOUT,<sup>8</sup> JO LAIRD,<sup>9</sup> JOSEPH A. MANDARINO,<sup>\*,\*\*</sup>  
WALTER V. MARESCH,<sup>10</sup> ERNEST H. NICKEL,<sup>††\*</sup> NICHOLAS M.S. ROCK,<sup>‡‡</sup>  
JOHN C. SCHUMACHER,<sup>11</sup> DAVID C. SMITH,<sup>§§</sup> NICK C.N. STEPHENSON,<sup>12</sup>  
LUCIANO UNGARETTI,<sup>|||</sup> ERIC J.W. WHITTAKER,<sup>13</sup> AND GUO YOUZHI<sup>14</sup>**

<sup>1</sup>Department of Geology and Applied Geology, University of Glasgow, Glasgow G12 8QQ, U.K.

<sup>2</sup>Department of Mineralogy, Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

<sup>3</sup>Mineral Sciences Division, Canadian Museum of Nature, P.O. Box 3443, Station D, Ottawa, Ontario K1P 6P4, Canada

<sup>4</sup>Department of Earth Sciences, University of Manitoba, Winnipeg, Manitoba R3T 2N2, Canada

<sup>5</sup>Department of Geology, Natural Science Museum, 2-23-1 Hyakanin-cho, Shinjuku, Tokyo 160, Japan

<sup>6</sup>Department of Geology and Mineralogy, Ben Gurion University of the Negev, Beer Sheva 84105, P.O. Box 653, Israel

<sup>7</sup>Faculty of Geology, St Petersburg University, University Em. 7/9, 199034, St. Petersburg, Russia

<sup>8</sup>Department of Ore Geology, Petrology and Mineralogy, Institute of Earth Sciences, Free University, Boelelaan 1085, 1081 HV Amsterdam, The Netherlands

<sup>9</sup>Department of Earth Sciences, College of Engineering and Physical Sciences, University of New Hampshire, Durham, New Hampshire 03824, U.S.A.

<sup>10</sup>Institute for Mineralogy, Westfälische Wilhelms, University of Münster, Correnstrasse 24, D4400 Münster, Germany

<sup>11</sup>Institut für Mineralogie-Petrologie-Geochemie der Albert-Ludwigs Universität Freiburg, Albertstrasse 23b, D-79104 Freiburg i. Br., Germany

<sup>12</sup>Department of Geology and Geophysics, University of New England, Armidale, New South Wales 2351, Australia

<sup>13</sup>60 Exeter Road, Kidlington, Oxford OX5 2DZ, U.K.

<sup>14</sup>Central Laboratory, Bureau of Geology and Mineral Resources of Hunnan Province, Dashiba, Kunming, China

### **ABSTRACT**

The International Mineralogical Association's approved amphibole nomenclature has been revised to simplify it, make it more consistent with divisions generally at 50%, define prefixes and modifiers more precisely, and include new amphibole species discovered and named since 1978, when the previous scheme was approved. The same reference axes form the basis of the new scheme and most names are little changed, but compound species names like tremolitic hornblende (now magnesiohornblende) are abolished, as are crossite (now glaucophane or ferroglaucophane or magnesioriebeckite or riebeckite), tirodite (now manganocummingtonite), and dannemorite (now manganogrunerite). The 50% rule has been broken only to retain tremolite and actinolite as in the 1978 scheme; the sodic-calcic amphibole range has therefore been expanded. Alkali amphiboles are now sodic amphiboles. The use of hyphens is defined. New amphibole names approved since 1978 include nyböite, leakeite, kornite, ungarettiite, sadanagaite, and cannilloite. All abandoned names are listed. The formulae and source of the amphibole end-member names are listed and procedures outlined to calculate Fe<sup>3+</sup> and Fe<sup>2+</sup> where not determined by analysis.

\* Indicates a non-voting official of the CNMMN.

† E-mail address: bel@geology.gla.ac.uk

‡ The Netherlands; retired December 1994.

§ Australia; from January 1995.

|| U.S.A.; resigned 1994.

# Canada; non-voting official since January 1995.

\*\* Canada; retired December 1994.

†† Australia.

‡‡ Australia; died February 1992.

§§ France; resigned 1994.

||| Italy; resigned April 1993.